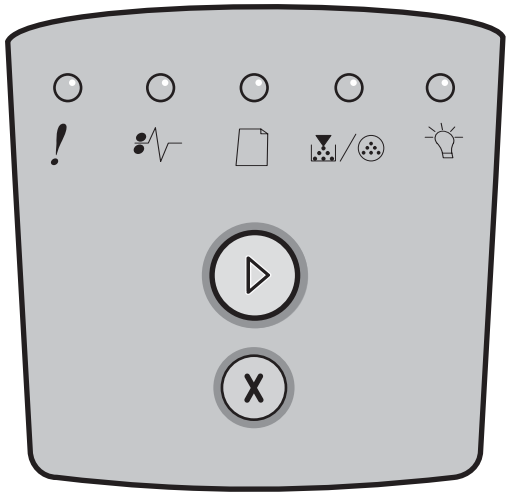
2. Diagnostic information

Start

CAUTION: Unplug power from the printer before connecting or disconnecting any other cable, assembly, or electronic card. This is a precaution for personal safety and to prevent damage to the printer.

This chapter contains the codes and diagnostic tools to aid in providing corrective action for a malfunctioning printer. To determine the corrective action to repair a printer, look for the following information:

- A description of a problem, see **"Symptom tables" on page 2-35**.
- Information from the operator panel of the printer.
  - **Models E250d and E250dn** have an operator panel containing lights and buttons.



Warning: Paper clips are commonly used near printers and can become lodged in the paper path. Always check for debris in the paper path.

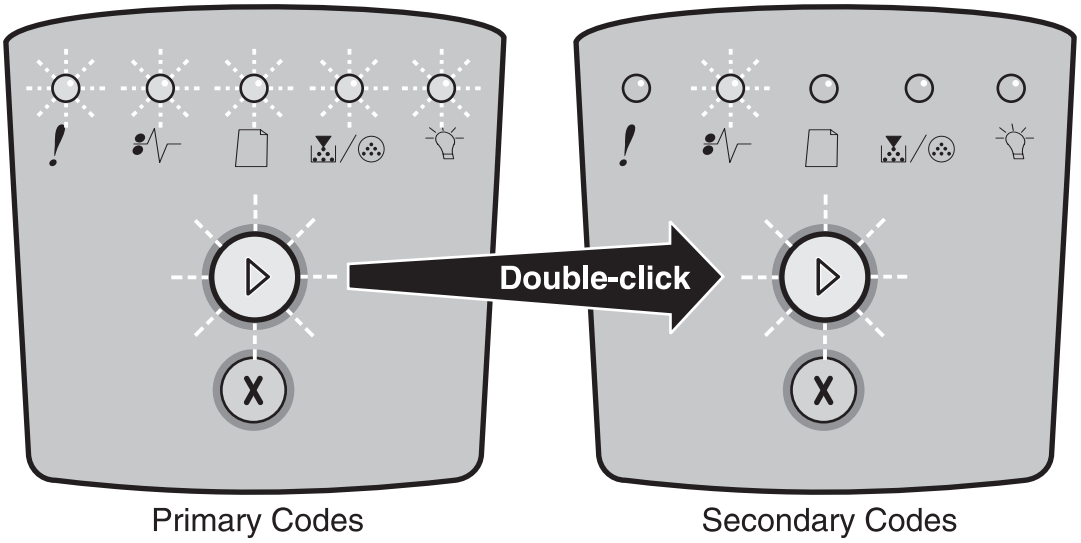
Power-On Self Test (POST) sequence

When the printer is turned on, it performs a POST. Check for correct POST functioning of the base printer by observing the following process:

1. All operator panel lights on momentarily
2. Lights then flash on and off sequentially.
3. After the lights quit flashing, the light flashes until the fuser comes up to temperature (5–20 additional seconds, depending on the initial temperature of the fuser) and then stays on.
4. If there is a problem in the printer such as a paper jam, the panel lights indicate the problem. See **"Common primary light patterns" on page 2-3** for more information.
5. The printer cycles down into standby mode, and lights solid.

Light patterns and error messages

User attendance messages, paper jam errors, and service errors display a light pattern. This may be all the information that is needed. However, if is double-clicked on the panel, a second pattern may appear with more detailed information. If is double-clicked again, the first pattern usually returns. Not all initial level light patterns have secondary patterns; when double-clicking, the pattern does not change.



All service errors are indicated by all lights flashing as the primary notification or code. The secondary code indicates an area or function which has the error. Additional tertiary codes used for service (see **"Service tertiary error codes" on page 2-23**) indicate specific errors. See **"Service codes" on page 2-21**.

Note: If data is sent to the printer and all lights flash immediately, and double-clicking does not change the display, there may be a code problem. Contact the next level of support.

Common primary light patterns

See **“Overview of the operator panel” on page 1-2** for icon information.

●	Light on
	Light off
✷	Light blinking
x	Light blinking slowly

Common light sequences

Printer Condition	Page	!					
Ready / Power Saver	4					●	
Busy	4					✷	
Hex Trace Ready	4					**x**	
Waiting	5					●	●
Flushing / Resolution reduced	5	✷				✷	
Not ready (printer is offline)	5						●
Close door	6	●					
Insufficient collation area/ Insufficient memory	6						
Cancel job/ Reset printer	6	●	●	●	●	●	●
Load print media Tray 1	7			●			●
Load manual feeder	7			●			
Toner low[1]	7				●		●
Toner cartridge region mismatch	8	●			●		
Photoconductor kit life warning[2]	8				✷		●
Replace photoconductor (printer hard stop)	8	✷			✷		●
Programming engine code/ Programming system code	9			●	●	●	
Invalid engine code / Invalid network code	9	●				●	
Service error	9	✷	✷	✷	✷	✷	✷
Printer error[3]	10	●					●
Paper jam printer error	10		●				●
Short media	10	●					●
Output bin full	11			✷			
Load Tray 1 for side 2 of manual duplex printing				●			✷

[1] Toner low light will remain on with other primary light sequences.

[2] Toner low light will remain flashing with other primary light sequences.

[3] Secondary codes will follow this code.

Primary codes

Ready/Power Saver

!					
				●	

Meaning

- The printer is ready to receive and process data.
- The printer is in Power Saver mode.

Action

- Send a print job.
- Press **Continue** ▷ to print the menu settings pages for a list of current printer settings.
- Press and hold **Cancel** ⓧ to reset the printer.

Busy

!					
				✷	

Meaning

- The printer is busy receiving and processing data or printing.
- The printer is printing a directory, font list, menu settings pages, or Print Quality Test Pages.

Action

Busy:

- Wait for the message to clear.
- Press and release **Cancel** ⓧ to cancel the print job.
- Press and hold **Cancel** ⓧ to reset the printer.

Printing a directory, a font list, menu settings pages, or Print Quality Test Pages:

- Wait for the pages to print. The Busy message is displayed as the pages print. The Ready light is on when the printing stops.
- Press and release **Cancel** ⓧ to cancel printing.
- Press and hold **Cancel** ⓧ to reset the printer.

Hex Trace Ready

!					
				x	

Meaning

The printer is in the Ready mode, and Hex Trace is active.

Action

- Advance users can use Hex Trace to help troubleshoot printing problems. After resolving the problem, turn off the printer to exit Hex Trace. Wait for the message to clear.
- Press and hold **Cancel** ⓧ to reset the printer.

Waiting

!					
				●	●

Meaning

The printer is waiting until a print timeout occurs, or until it receives additional data.

Action

- Press **Continue** ▷ to print the contents of the print buffer.
- Press and release **Cancel** ⓧ to cancel the print job.
- Press and hold **Cancel** ⓧ to reset the printer.

Flushing/Resolution reduced

!					
✷				✷	

Meaning

- The printer is flushing corrupted print data.
- The printer is processing data or printing pages, but the resolution of a page in the current print job is reduced from 600 dots per inch (dpi) to 300 dpi to prevent a memory full error.

Action

- Wait until the control panel returns to Ready to print other jobs.
- Press and release **Cancel** ⓧ to cancel the print job.
- Press and hold **Cancel** ⓧ to reset the printer.

Not ready

!					
					●

Meaning

The printer is not ready to receive or process data, or the printer ports are offline.

Action

- Press and release **Continue** ▷ to return to the Ready state.
- Press and release **Cancel** ⓧ to return to the Ready state.

Close door

!					
●					
Meaning					
The printer front door is open.					
Action					
Close the door. The printer will automatically reset.					

Insufficient collation area/Insufficient memory

!					
●					●
Meaning					
The printer memory is too full to collate the print job.					
Action					
• Press and release **Continue** ▷ to clear the message and continue printing the job. (The job may not print correctly.) • Press and release **Cancel** X to cancel the print job. • Press **Cancel** X to reset the printer.					

Cancel job/Reset printer

!					
●	●	●	●	●	●
Meaning					
• The current print job is canceled. • The printer is resetting to the user default settings. Any active print jobs are canceled. A user default setting remains in effect until it is changed or has restored the factory default settings.					
Action					
Wait for the message to clear.					

Load print media

!					
		●			●

Meaning

The printer is out of print media at the indicated source.

Action

- Load print media into the indicated tray, and press **Continue** ▷ to resume printing.
- Press **Cancel** ⓧ to reset the printer.

Load manual feeder

!					
		●			

Meaning

The printer prompts to load a single sheet of print media in the manual feeder.

Action

- Load print media into the manual feeder.
- Press **Continue** ▷ to resume printing.
- Press **Cancel** ⓧ to reset the printer.

Toner low

!					
			●		●

Meaning

The printer is ready to receive and process data. In addition, the toner in the toner cartridge is getting low.

Action

- Press and release **Continue** ▷ to clean the light sequence and continue processing the print job.
- Turn the printer off.
- Remove the toner cartridge, and shake it to extend the life.
- Replace the toner cartridge.

Toner cartridge region mismatch

!					
●			●		

Meaning

The geographic region of the printer does not match the geographic region of the installed toner cartridge.

Action

Remove the toner cartridge, and install a new toner cartridge that matches the region of the printer.

Photoconductor kit life warning

!					
			✷		●

Meaning

The photoconductor is almost full and should be replaced soon.

Note: The Toner Alarm must be turned on in the driver for this message to appear. The factory default is **Off**.

Action

- Press and release **Continue** ▷ to clear the light sequence and continue printing.
- Replace the photoconductor kit.

Replace photoconductor (printer hard stop)

!					
✷			✷		●

Meaning

The photoconductor kit is full and must be replaced. The printer will not print any more pages until the photoconductor kit is replaced.

Action

- Press and release **Continue** ▷ to print a photoconductor kit instruction page.
- Replace the photoconductor kit.

Programming engine code/Programming system code

!					
		●	●	●	
Meaning					
New code is being programmed into the engine or firmware code flash.					
Action					
Wait for the message to clear. When the printer has finished programming the code, it performs a soft reset.					

Invalid engine code/Invalid network code

!					
●				●	
Meaning					
The engine code and/or the network code has not been programmed or has been programmed but is invalid.					
Action					
Download valid engine code to the internal print server.					

Service error

!					
✷	✷	✷	✷	✷	✷
Meaning					
The printer has a service error, and printing has stopped.					
Action					
Press **Continue** ▷ twice to see the secondary code. See **"Service codes" on page 2-21** to locate the problem.					

Printer error

!					
●					●

Meaning

The printer has one of the following errors:

- Memory is full, insufficient to save what is in the buffer.
- A page is too complex too complex to print or is shorter than the set page margins.
- Resolution of a formatted page is reduced to 300 dpi.
- A font error occurred.
- Communication with the host computer is lost.
- Short media.

Action

- Press **Continue** ⓟ twice quickly to see the secondary error code.
- Press **Continue** ⓟ to clear the secondary message.

Paper jam printer error

!					
	●				●

Meaning

The printer has a paper jam.

Action

- Press **Continue** ⓟ twice quickly to see the secondary error code.
- Press **Continue** ⓟ to resume printing once all the jammed pages are cleared from the paper path.

Short media

!					
●					●

Meaning

The media length is too short to print the formatted data. This occurs when the printer does not know the print media size loaded in the way, or when there is a problem feeding the print media.

Action

- Make sure the print media that is loaded is large enough.
- Open the front door, clear the paper path, and close the door to resume printing.
- Press **Continue** ⓟ to clear the light sequence and continue printing.
- Press **Cancel** ⓧ to cancel the print job.

Output bin full

!					
		✷			

Meaning

The output bin is full.

Action

- Remove printed pages from the output bin.
- Press **Continue** ⓓ to clear the error code.

Common secondary light patters

- When the **Error** ! and **Continue** ⓟ lights are both on, a secondary error has occurred.
- When the **Paper jam** and **Continue** ⓟ lights are both on, a paper jam secondary error has occurred.

Press and release **Continue** ⓟ twice quickly to display the secondary error code light sequence. The following table shows what these light sequences mean and where to go for help.

Secondary light sequences

Printer Condition	Page	!					ⓟ
Paper jam at the input sensor	13		●			●	●
Paper jam in the manual feeder	13		●		●	●	●
Paper jam between the input and exit sensor	13		●		●		●
Paper jams at the exit sensor	13		●	●			●
Paper jam in the 250-sheet tray	14		●	●	●		●
Paper jam in the 550-sheet drawer	14		●	●		●	●
Paper jam (duplex rear)	14		●	✷			●
Paper jam (duplex - location unknown)	14		●			✷	●
Paper jam (duplex - unsupported size)	15		●	✷		✷	●
Complex page	15	●				●	●
Insufficient collation area	16	●			●		●
Network interface errors	16	●	●				●
Font error	16	●			✷		●
Insufficient printer memory	16	●		✷			●
ENA connection lost	17	●	✷				●
Host interface disabled	17	●	✷	✷			●
Memory full	17	●			●	●	●
Short media	18	●		●		●	●
Invalid engine code	18	●		●		●	
Invalid network code	18	●		✷		●	
Toner cartridge region mismatch	19	●		✷	●		
Change toner cartridge / invalid refill	19	●	✷		●		
Missing / Defective toner cartridge	19	●	●		●		
Unsupported toner cartridge	20	●		●	●		

Secondary error codes

Paper jam at the input sensor

!					
	●			●	●
Meaning					
A paper jam has occurred at the input sensor, which can be either after the print media leaves the tray and enters the printer or in the manual feeder.					
Action					
Clear the paper jam.					

Paper jam in the manual feeder

!					
		●	●	●	●
Meaning					
A paper jam has occurred at the manual feeder.					
Action					
Clear the paper jam.					

Paper jams between the input and exit sensors

!					
	●		●		●
Meaning					
A paper jam has occurred. The jammed media is most likely in the fuser area under the toner cartridge assembly.					
Action					
Clear the paper jam.					

Paper jams as a printed job exits the printer

!					
	●	●			●
Meaning					
A paper jam has occurred as the print media is exiting the printer.					
Action					
Clear the paper jam.					

Paper jam in the 250-sheet tray

!					
	●	●	●		●
Meaning					
A paper jam has occurred in the 250-sheet tray.					
Action					
Clear the paper jam.					

Paper jam in the 550-sheet drawer

!					
	●	●		●	●
Meaning					
A paper jam has occurred in the 550-sheet drawer.					
Action					
Clear the paper jam.					

Paper jam (duplex rear)

!					
	●			✷	●
Meaning					
A paper jam has occurred in the rear area of the printer.					
Action					
Clear the paper jam.					

Paper jam (duplex - unknown location)

!					
	●			✷	●
Meaning					
A paper jam has occurred somewhere in the duplex unit.					
Action					
Clear the paper jam.					

Paper jam (duplex - unsupported size)

!					
	●	✷		✷	●

Meaning

A paper jam has occurred in the duplex unit due to an unsupported print media size.

Action

Clear the paper jam.

Complex page

!					
		●		●	●

Meaning

The page may not print correctly because the print information on the page is too complex (that is, too large for the printer memory).

Action

- Press **Continue** to clear the error code and continue processing the print job (some of the print data may be lost).

To avoid this error in the future:

- Reduce the complexity of the page by reducing the amount of text or graphics on the page and deleting unnecessary download fonts or macros.
- Set **Page Protect** to On in the Local Printer Setup Utility.
- Install additional printer memory.

Insufficient collation area

!					
●			●		●

Meaning

The printer memory does not have the free space necessary to collate the print job. This may happen due to one of these errors:

- Memory is full.
- A page is too complex to print.
- A page is shorter than the set page margins.
- Memory is insufficient to save what is in the buffer.

Action

- Press **Continue** ▷ to clear the message and continue printing the job. (The job may not print correctly.)
- Press and release **Cancel** ⓧ to cancel the print job.
- Press and hold **Cancel** ⓧ to reset the printer.

To avoid this error in the future:

- Simplify the print job. Reduce the complexity of the page by reducing the amount of text or graphics on the page and deleting unnecessary downloaded fonts or macros.
- Install additional printer memory.

Network interface errors

!					
●	●				●

Meaning

The printer cannot establish communication with the network.

Action

Press **Continue** ▷ to clear the message and continue printing. (The previous print job may not print correctly.)

Font error

!					
●		✷			●

Meaning

The printer does not have enough memory to save the data in the buffer.

Action

- Install additional memory.
- Press **Continue** ▷ to continue printing the job.
- Press **Cancel** ⓧ to cancel the print job.

ENA connection lost

!					
●	✷				●

Meaning

The printer cannot establish communication with the network.

Action

Press **Continue** ⓓ to clear the code and continue printing. (The previous print job may not print correctly.)

Host interface disabled

!					
●	✷	✷			●

Meaning

The printer USB or parallel port has been disabled.

Action

Press **Continue** ⓓ to clear the code. The printer discards any print jobs previously sent. Enable the USB or parallel port by selecting a value other than Disabled for the USB Buffer or Parallel Buffer item in the Local Printer Settings Utility.

Memory full

!					
●			●	●	●

Meaning

The printer is processing data, but the memory used to store pages is full.

Action

- Press **Continue** ⓓ to clear the message and continue printing the job (the job may not print correctly).
- Press and release **Cancel** ⓧ to cancel the print job.
- Press and hold **Cancel** ⓧ to reset the printer.

To avoid this error in the future:

- Simplify the print job. Reduce the complexity of the page by reducing the amount of text or graphics on the page and deleting unnecessary downloaded fonts or macros.
- Install additional printer memory.

Short media

!					
●		●		●	●
Meaning					
The media length is too short to print the formulated data. This occurs when the printer does not know the print media size loaded in the tray, or there is a problem feeding the print media.					
Action					
• Make sure the print media that is loaded is large enough. • Open the front door, clear the paper path and close the door to resume printing. • Press **Continue** ▷ to clear the code and continue printing the job. • Press **Cancel** ⓧ to cancel the print job.					

Invalid engine code

!					
●		●		●	
Meaning					
The engine code has not been programmed, or the programmed code is not valid.					
Action					
Download the valid engine code to the internal print server.					

Invalid network code

!					
●		✷		●	
Meaning					
The code in an internal print server had not been programmed, or the programmed code is not valid.					
Action					
Download the valid engine code to the internal print server.					

Toner cartridge region mismatch

!					
●		✷	●		

Meaning

The geographic region of the printer does not match the geographic region of the installed toner cartridge.

Action

Remove the toner cartridge, and install a new toner cartridge that matches the region of the printer.

Change toner cartridge/invalid refill

!					
●	✷		●		

Meaning

The toner in the toner cartridge is getting low, or an invalid refill toner has been installed.

Action

- Press and release **Continue** ▷ to clear the light sequence and continue processing the print job.
- Turn the printer off.
- Remove the toner cartridge, and shake it to extend the life, or replace the toner cartridge with a valid toner cartridge.
- Replace the toner cartridge.
- Turn the printer back on.

Missing/Defective toner cartridge

!					
●	●		●		

Meaning

The toner in the toner cartridge is getting low, or a defective toner cartridge has been detected.

Action

- Press and release **Continue** ▷ to clear the light sequence and continue processing the print job.
- Turn the printer off.
- Remove the toner cartridge, and shake it to extend the life, or replace the toner cartridge if it is defective.
- Replace the toner cartridge.
- Turn the printer back on.

Unsupported toner cartridge

!					
●		●	●		

Meaning

The toner cartridge is not supported by the printer.

Action

- Press and release **Continue** ▷ to clear the light sequence and continue processing the print job.
- Turn the printer off.
- Remove the toner cartridge, and replace it with a supported toner cartridge.
- Turn the printer back on.

Service codes

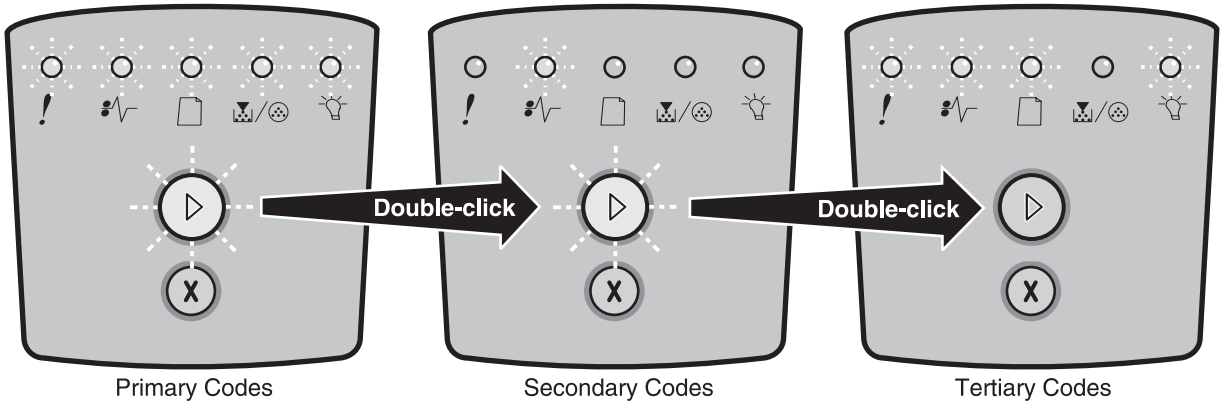
All service errors are indicated by all lights flashing as the primary notification or code. The secondary light pattern indicates an area or function which has the error. Tertiary codes (shown on the following pages) indicate specific device errors. When all lights flash, double-click ⓓ to see the secondary code. Double-click ⓓ again to see the tertiary code. Double-click ⓓ a third time to return to the primary light pattern.

In the following example:

- The primary light pattern indicates a service error (all flashing). Double-click ⓓ for more information.
- The secondary light pattern indicates a fuser, toner sensor, or fan error. Double-click ⓓ for more information.
- The tertiary light pattern indicates the fan has stalled. Double-click ⓓ again and the original primary light pattern will appear.

Note:

- The printer cannot directly determine that a fan has failed, but can sense the higher temperature at the fuser or printhead.
- If data is sent to the printer and all lights flash simultaneously, and double-clicking ⓓ does not produce a secondary code, there may be a code problem. Contact the next level of support.



Service primary code

✷	Light blinking

When this code appears, double-click ⓓ to reveal the secondary codes.

Service primary code

Lights	!					ⓓ
Primary code for service errors See service secondary error codes	✷	✷	✷	✷	✷	✷

Service secondary error codes

Service secondary codes

Lights	!					
900—Software	✷					✷
91x—DC motor or transfer roll						✷
92x—Fuser or toner sensor		✷				✷
93x—Printhead, drive motor	✷	✷				✷
94x—LVPS service error			✷			✷
95x—Controller card (NCRAM, ROM, or NAND)	✷		✷			✷
96—RAM memory		✷	✷			✷
97x—Network	✷	✷	✷			✷

Service tertiary error codes

Service tertiary error codes

Service error codes are generally non-recoverable except in an intermittent condition when POR (power-on reset) is performed which allows the printer to temporarily recover from the error.

Note: All service errors are initially communicated by all lights flashing which is the primary indication or code. For brevity, this indication is not repeated in the following codes.

CAUTION: When this symbol appears, there is a danger from hazardous voltage in the area of the product that is being worked on. Unplug the product before beginning, or use caution if the product must receive power in order to perform the task.

Controller software

Codes 90x indicate a controller software error/illegal trap. For the other errors, which indicate a faulty programming process or faulty component on the controller card, replace the controller card. See **“Controller card removal” on page 4-13****.**

Service tertiary error codes—controller software

Lights	!					
Service secondary codes—90x						✶
Service tertiary codes						
902—General engine software error		✶			✶	
905—Interface violation by paperport device		✶	✶		✶	
Service watchdog—90x	✶		✶		✶	
Timer service slow		✶		✶		✶

Transfer roll or tray 2

Code 914 indicates an error in tray 2 motor. Replace the drawer.

Code 917 indicates a problem in the transfer roll circuitry. Check the continuity from the cable connection on the HVPS (high voltage power supply) to the right side of the transfer roll.

Service tertiary error codes—transfer roll

Lights	!					
Service secondary codes—91x	✶					✶
Service tertiary codes						
914—Tray 2 motor failure			✶		✶	
917—Transfer roll circuity	✶	✶	✶		✶	

Fuser, fan, or toner sensor error

Codes 920 through 929 indicate a problem in the fuser (see fuser service check...), a stalled fan motor, or a faulty toner sensor or toner cartridge. Multiple errors indicate replacing the corresponding part.

Service tertiary error codes—fuser, fan, or toner sensor

Lights	!					
Service secondary codes—92x		✷				✷
Service tertiary codes—fuser, fan, or toner sensor						
920—Fuser below temperature when printing					✷	
921—Fuser below standby temperature at idle	✷				✷	
922—Fuser failed to reach standby temperature		✷			✷	
923—Fuser too hot during printing or idle	✷	✷			✷	
924—Open circuit in thermistor path			✷		✷	
925—Incorrect fuser	✷		✷		✷	
927—Fan stalled	✷	✷	✷		✷	
929—Toner sensor or toner cartridge are bad	✷			✷	✷	

Printhead, transport motor, or RIP/engine communication error

Codes 930 through 935 indicate a problem with the printhead. Check cables to the printhead. Replace the printhead as necessary.

Codes 936 and 937 indicate a problem in the drive system motor.

Code 939 indicates a communication failure between the RIP and engine processors.

Service tertiary error codes—printhead, transport motor, or RIP engine communicator

Lights	!					
Service secondary codes—93x	✷	✷				✷
Service tertiary codes—printhead, transport motor, or RIP engine communicator						
930—Printhead error					✷	
931—Printhead error	✷				✷	
932—Printhead error		✷			✷	
933—Printhead error	✷	✷			✷	
934—Printhead error			✷		✷	
935—Printhead error	✷		✷		✷	
936—Transport motor error		✷	✷		✷	
937—Transport motor error	✷	✷	✷		✷	

NVRAM failure

Error codes 950-954 indicate a problem in the NVRAM (nonvolatile random access memory). Replace the operator panel assembly. Codes 955-959 indicate a failed controller card assembly. Replace the controller card.

Service tertiary error codes—NVRAM failure

Lights	!					
Service secondary codes—95x	✷		✷			✷
Service tertiary codes—NVRAM failure						
950—Secure EEPROM data does not match NVRAM					✷	
951—Secure EEPROM failure	✷				✷	
952—NVRAM CRC failure		✷			✷	
954—NVRAM chip failure			✷		✷	
955—Code ROM or NAND failed CRC	✷		✷		✷	
956—Processor failure		✷	✷		✷	
957—ASIC failure	✷	✷	✷		✷	
958—NAND failure				✷	✷	
959—SRAM failure	✷			✷	✷	

Network error

Indicates an error in the network circuitry. Replace the controller card assembly.

Service tertiary error codes—network error

Lights	!					
Service secondary codes—97x	✷	✷	✷			✷
Service tertiary codes—network error						
975—Unrecognizable network port	✷		✷		✷	
976—Unrecoverable software error in network port		✷	✷		✷	
978—Bad checksum while programming port				✷	✷	
979—Flash parts failed while programming port	✷			✷	✷	